APPROPRIATENESS OF MINIMUM NURSE STAFFING RATIOS IN NURSING HOMES

EXECUTIVE SUMMARY

Background

Purpose

The purpose of this study and Report to Congress is to examine the analytic justification for establishing minimum nurse staffing ratios for nursing homes. This report was mandated by Public Law 101-508 which required the Secretary to report to the Congress on the feasibility of establishing minimum caregiver ratios for Medicare and Medicaid certified nursing homes.

The issue of minimum nurse staffing for nursing homes has been debated since the Omnibus Budget Reconciliation Act of 1987 (OBRA '87). Nursing home resident advocates tend to believe that poor care is directly tied to inadequate staffing. Provider associations are more likely to view staffing problems as a series of complicated interactions involving the short supply of nursing home workers, facility differences in resident acuity and functional limitations, and Federal and State reimbursements.

The examination of this issue has been divided into two phases. This report on Phase 1 examines whether there is a real association between staffing levels in nursing homes and quality of care. The second phase of the report will: 1) examine the cost and benefits associated with establishing staffing minimums; 2) expand the data used in the multivariate analysis from three States to a more representative national sample; 3) explore more refined case mix classification methods; 4) do case studies to validate the Phase 1 findings; and 5) examine other issues which impact the recruitment and retention of Certified Nursing Assistants. The results of these studies will provide the formulation for policy decisions on whether and how to implement a minimum staffing requirement at the individual nursing home level.

Public Concern and the Role of the Health Care Financing Administration

Public and congressional concern about staffing has been heightened by the Health Care Financing Administration's (HCFA's) comprehensive 1998 nursing home Report to Congress that identified a range of serious problems including malnutrition, dehydration, pressure sores, abuse and neglect, as well as similar reports from the U.S. General Accounting Office, and the Office of the Inspector General.

This concern across the country regarding adequate staffing in nursing homes has been reflected in several States among both those responsible for licensure standards and rate-setters. At least 37 States

have imposed new, more stringent staffing requirements under their State licensure

authority and 19 States have introduced State legislation in this area. (See attachment). Further, at least 10 States now explicitly tie some portion of rates to staff levels or wages.

Over 95% of the 16,480 nursing homes in the United States participate in the Medicare and/or Medicaid program(s). Under the statutory authority of the Omnibus Budget Reconciliation Act of 1987, HCFA issued regulations and program guidance that included a *general* requirement that nursing homes must provide ". . . sufficient nursing staff to attain or maintain the highest practicable . . . well-being of each resident . . ."

This general requirement, as well as the minimum requirement of 8-hour registered nurse and 24- hour licensed nurse coverage per day outlined in regulation, has been criticized as too vague. In addition, because this minimum requirement is the same for all nursing homes, from 60 bed facilities to 600 bed facilities, many advocates and professionals view this standard as inadequate. For these reasons, increasing minimum nurse staffing ratios has been proposed as a way to improve the quality of care for residents. However lack of information on the relationship between ratios, quality and cost have, to date, limited policy development.

Research Objectives and Study Approach*

Study Objectives

We are submitting this report to Congress in two phases. The Phase 1 and Phase 2 reports will determine: 1) if minimum nurse staffing ratios are appropriate; and, if appropriate; 2) what the alternative minimum staffing ratios may be, and the potential cost and budgetary implications of minimum ratio requirements; and 3) if there are nurse staffing ratios that strongly determine good or *optimal* resident outcomes. The Phase 1 report will address the first and third study objectives. The Phase 2 report will provide a broader validation of the Phase 1 results, including the results of qualitative case studies and site visits to nursing homes. In addition Phase 2 will include an assessment of costs, benefits and feasibility of implementing minimum ratio requirements.

In both Phase 1 and Phase 2 reports, the phrase "nurse staffing" refers to all three categories of nurses: Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and Nurse Aides/Nursing Assistants.

It is important to acknowledge that HCFA contracted with a number of research firms to conduct this study. We also convened a panel of nationally recognized experts in the fields of long-term care, nursing economics, and other disciplines to review the literature on staffing. In addition, we consulted extensively with a number of stakeholders, including consumer advocates, nursing home industry officials and representatives from labor unions. A full discussion of our consultation process is

described in Chapter 1.

Report Layout

Chapters 2 through 6 provide additional background and policy context for the study, including an examination of staffing citations and the results of focus group discussions with direct care workers, nurse aides, and nursing facility management. Chapters 9 through 12 present the results of multivariate analyses on the effects of nurse staffing on selected quality measures derived from a number of data sources. Chapter 13 examines three specific time-motion methods for setting nurse staffing levels, and Chapter 14 presents the results of a simulation analysis that estimated the amount of nurse aide time required to implement five specific daily care processes that have been linked to good resident outcomes.

Study Approach

In this report, we used three basic research strategies for addressing the key study question of whether there are appropriate minimum nurse staffing ratios:

Review of Prior Research and Expert Consensus Evaluation of that Research

This strategy included a literature review and consultation with experts in the field. The research we examined evaluated the relationship between staffing and resident outcomes. Under the first research strategy, a review of literature indicated no consistently strong positive association between staffing and resident outcomes. Results of the literature review are detailed in Chapter 6. However, none of the studies specifically reviewed the link between quality of care and staffing ratios.

Empirical Determination (Multivariate Analysis) of the Relationship Between Staffing and Quality

Measures of nurse staffing and outcome measures were obtained for a large number of nursing homes, and the relationship between the two were examined using multivariate analysis. The analyses were designed to identify potential critical ratio thresholds. This approach focused directly on the examination of whether there is a correlation between staffing and quality, the first analysis to evaluate this relationship.

Some of the outcomes examined included avoidable hospitalizations, improvement in activities of daily living (ADLs) functioning, incidence of pressure sores, weight loss, and resident cleanliness and grooming. Strong associations between low staffing and the likelihood of quality problems across these measures, adjusted for risk, were found for all nurse staffing. Results of this analysis are detailed in Chapters 9 through 12 of the text.

A Time-Motion Approach to Setting Nurse Staffing Standards

Time-motion studies are designed to determine the amount of time it takes to perform certain functions or tasks. In this report, we examined three specific time-motion methods for setting nurse staffing levels: the U.S. Army Workload Management System for Nursing, William Thoms' "Management Minutes" system, and HCFA's own Staff Time Measurement studies on nursing care in nursing homes performed from 1995-1997. These analyses are presented in Chapter 13. This approach simulated the nurse aide time necessary to implement certain essential tasks that have been linked to good resident outcomes.

Finally, we estimated the nurse aide time required to implement five specific daily care services that have been linked to good resident outcomes: repositioning and changing wet clothes; repositioning and toileting; exercise encouragement/assistance; feeding assistance; and ADL independence enhancement (morning care). A simulation analysis estimated these times for six major categories of residents with different functional limitations and care needs that broadly define the nursing home population. Results of this analysis are detailed in Chapter 14.

Other Policy Issues

Apart from the empirical findings in this report, we also examined several specific policy issues. They include: 1) the potential impact of a specific minimum standard recommended by the Hartford Institute conference; 2) whether raising the current minimum requirement levels have the unintended consequence of lowering the staffing levels of other facilities that, in the absence of the new higher minimum, would staff at relatively higher levels; 3) whether nursing homes affiliated with chains experiencing financial difficulties have reduced their nurse staffing levels in an effort to control costs; 4) whether State surveyors can typically meet the considerable burden of documentation required to determine compliance with the HCFA's general nursing home staffing requirement, and; 5) whether nursing homes comply with HCFA's general staffing requirement. This study does not focus on alternative policies, such as increased public dissemination of performance data or enhanced intensity of survey and certification practices.

III. Findings

Strong findings on the relationship between staffing and quality were derived from the multivariate analysis and the time motion studies. The details of these findings are below.

- ***Findings from the Literature Review***

A review of the literature revealed no consistently strong positive or negative association between

staffing levels and patient care outcomes. In addition, even if the evidence had been stronger and more consistent, none of the reviewed studies were designed to identify a critical ratio of nurses to residents below which nursing home residents are at substantially increased risk of quality problems.

C ***Findings from the Multivariate Analysis of the Relationship between Staffing and Quality***

The analysis of the data from three States demonstrated that after controlling for case mix, staffing thresholds exist below which quality of care may be seriously impaired. These thresholds were at staffing levels that were above staffing ratios for a significant percentage of facilities. In addition, the analyses suggested that minimum levels may reduce the likelihood of quality problems in several areas, but higher "preferred minimum" levels existed above which quality was improved across the board. These levels are outlined below.

Staff	**Minimum Staffing Level**	**Below Standard**
Aide	2.00 hrs/resident day	54%
RN and LPN	.75 hrs/resident day	23%
RN	.20 hrs/resident day	31%
	Preferred Minimum Level	
Aide	2.00 hrs/resident day	54%
RN and LPN	1.00 hrs/resident day	56%
RN	.45 hrs/resident day	67%

Higher or lower thresholds were identified for different case mix categories. This empirical analysis provides the core approach for developing minimum nurse staffing ratios. Further analyses involving more States, facilities that were certified only for Medicare (which were excluded from this analysis), and refinement of methods for taking case mix into consideration will be required to establish national critical staffing levels.

C ***Findings from the Time-Motion Studies***

The minimal nurse aide staff necessary to provide optimal care in delivering the five specific daily care services outlined above is 2.9 hours per resident day. This time-motion derived standard should be viewed as a condition for optimal care by nurse aides. Over 92% of nursing homes in the United States fall below the 2.9 hours per resident day standard. In addition, nearly half of these facilities would need to increase nurse aide staffing by 50% or more to reach this threshold.

C ***Findings of the Other Policy Issues Examined***

We analyzed a proportion of facilities that would be affected by the 4.55 minimum total hours per

resident day recommended by the Hartford Conference. We found that only 11% of facilities had more than 4.55 total hours in 1998, and many facilities would have to increase staffing by 50% or more to be in compliance with this requirement. A complete discussion of this analysis is presented in Chapter 6.

We also compared a variety of measures of the State-level distribution of staffing across three groups of States --those with no requirement, those with a less demanding standard, and those with the more demanding standard. The analysis, conducted with an inherently limited study design, found that States with more demanding minimum standards had higher average staffing levels. However, the evidence was mixed and inconclusive as to whether higher-staffed facilities reduced their staffing when the State implemented a more demanding minimum standard. Results of this analysis are presented in Chapter 3.

We found that total nursing hours for chains with financial difficulties and other large chains decreased relative to other facilities. Total hours for facilities associated with bankruptcy-filed chains decreased by 2% for 1998 and 3.5% for 1999. This analysis is more fully explained in Chapter 3.

The new mandatory protocol for surveyors to use in assessing the adequacy of staffing was introduced in July 1998 through HCFA's State Operations Manual (SOM). Unfortunately, this appears to have had no effect. Additionally, the analysis of staffing citations, both before and after the State Operations Manual release, and an analysis of the HCFA 2567 ("Statement of Deficiencies and Plan of Correction"), raised doubts that surveyors can typically meet the considerable burden of documentation required to determine compliance with the *general* staffing requirement that staffing must be sufficient to meet resident needs. In contrast, when surveyors have a very *specific* requirement to enforce, the determination of compliance is more easily and accurately made. A more thorough discussion of the results is presented in Chapter 4.

IV. Conclusions

The analyses conducted for this Report have established that there may be critical ratios of nurses to residents below which nursing home residents are at substantially increased risk of quality problems:

- Using multivariate analysis and limited data from a few states, the minimum staffing level associated with reducing the likelihood of quality problems is approximately 2.0 hours per resident day for nurse aides, regardless of facility case mix.

- Using multivariate analysis, the preferred minimum staffing levels for RN and total licensed staff (RN and LPN) in which quality was improved across the board are .45 and 1.0 hours per resident day, respectively.

- Using a time-motion derived standard, the minimal nurse aide time necessary to provide optimal care in delivering five specific daily care processes is 2.9 hours per resident day.

These estimated staffing thresholds are relatively high, and a considerable number of facilities will be impacted if these thresholds were to become minimum requirements.

Next Steps

This report does not include any specific recommendations. The potential establishment of a regulatory minimum ratio requirement will require further research on more states in order to identify alternative minimum thresholds and optimal case-mix adjusters, and to assess relative costs and benefits of such thresholds. In addition, more research will be required to assess the feasibility of implementing minimum ratio requirements.

Phase 2 will more fully examine empirically-derived minimum staffing levels and methods for case-mix adjustment as suggested by Phase 1. We will conduct five basic analyses in the Phase 2 report. First, in order to identify specific ratios, we will analyze more current staffing data, in more States, and with more refined case-mix adjustments. We will also conduct case studies in a sample of nursing homes in targeted States to better understand the relationship between staffing and quality found in the Phase 1 study. This includes examining other issues that may affect quality of care-- turnover rates, amount of staff training, and management of staff resources.

The Phase 2 analyses will also examine the costs and benefits associated with possible study recommendations for a regulatory requirement of minimum nurse staffing ratios. We expect this cost analysis to include an assessment of the impact of regulatory changes on providers and payers, including Medicare and Medicaid. We also expect to integrate a workforce analysis with the cost analysis because, even if cost increases associated with higher staffing levels could be absorbed, it may not be possible to secure the necessary nursing staff at realistic wage levels.

* Attribution and Phase 1 Analyses

A footnote on the first page of each of the 14 chapters details the appropriate attribution and acknowledgments for all of the analyses contained in the chapter. Although this is a HCFA Report for which it alone is responsible, *each of the reports received from contractors and subcontractors has not been changed or altered in any way*, other than minor editing.

ATTACHMENT

Staffing Ratios

The majority of States, 37, have established some type of nurse staffing requirements. However these requirements vary considerably. The three categories below group states according to type of nurse staffing requirement. Note that some states appear in more than one category because they may have more than one type of requirement. This information is included in Appendix A1 of this Report. HCFA obtained this data from the National Citizens' Coalition for Nursing Home Reform.

Hours of Nursing Care Per Patient Day:

California	Illinois	Michigan	Pennsylvania
Colorado	Indiana	Minnesota	Tennessee
Connecticut	Iowa	Mississippi	Texas
Delaware	Kansas	Montana	Washington
Florida	Louisiana	Nevada	West Virginia
Georgia	Maryland	New Jersey	Wisconsin
Idaho	Massachusetts	North Carolina	Wyoming

Staff Members to Resident Ratio:

Arkansas	Maine	Oklahoma	Texas
Kansas	Michigan	Oregon	West Virginia
Louisiana	Ohio	South Carolina	

RN 24-hours 7-days a Week:

California	Hawaii	Rhode Island
Colorado	Maryland	
Connecticut	Pennsylvania	